LAB 4

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Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea( ). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given

shape.

```
abstract class Shape {
   protected int dimension1; // could represent length, base, or radius
   protected int dimension2; // could represent width or height, or could be unused for Circle

      public abstract void printArea();
}

class Rectangle extends Shape {
   public Rectangle(int length, int width) {
      this.dimension1 = length;
      this.dimension2 = width;
   }

   public void printArea() {
      int area = dimension1 * dimension2;
      System.out.println("Area of Rectangle: " + area);
   }
}

class Triangle extends Shape {
   public Triangle(int base, int height) {
      this.dimension1 = base;
      this.dimension2 = height;
```

```
    }


    public void printArea() {
        double area = 0.5 * dimension1 * dimension2;
        System.out.println("Area of Triangle: " + area);
    }
}

class Circle extends Shape {
    public Circle(int radius) {
        this.dimension1 = radius; // Only one dimension is needed for Circle
    }

        public void printArea() {
        double area = Math.PI * dimension1 * dimension1;
        System.out.println("Area of Circle: " + area);
    }
}

public class ShapeTest {
    public static void main(String[] args) {
        Shape rectangle = new Rectangle(5, 3);
        rectangle.printArea();

        Shape triangle = new Triangle(4, 6);
        triangle.printArea();

        Shape circle = new Circle(7);
        circle.printArea();
    }}
```

```
D:\Abhinav3A\Java>java ShapeTest
Name: Abhinav Sanjay
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Area of Rectangle: 15
Area of Triangle: 12.0
Area of Circle: 153.93804002589985
```